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(81) 指定国(国家): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

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(84) 指定国(地区): ARIPO专利(GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), 欧亚专利(AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), 欧洲专利(AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI专利(BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

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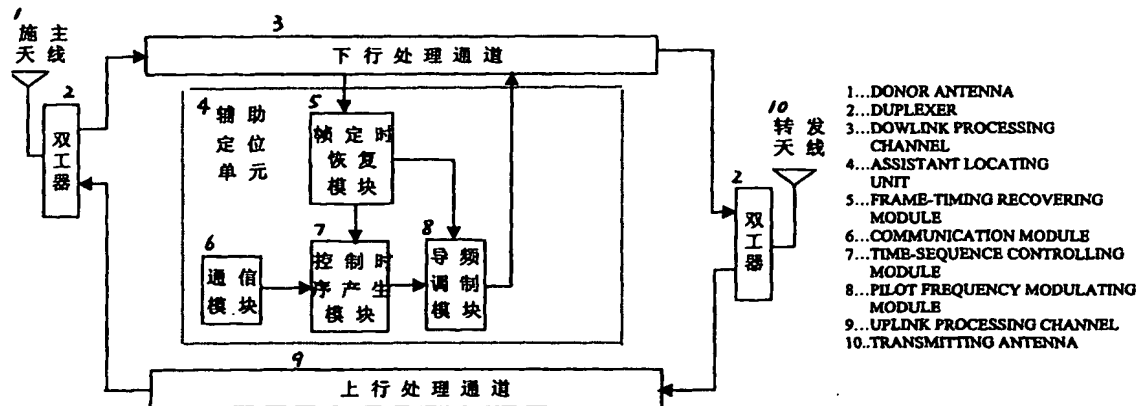
本国际公布:
— 包括国际检索报告。

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所引用双字母代码和其它缩写符号, 请参考刊登在每期 PCT公报期刊起始的“代码及缩写符号简要说明”。

(54) Title: A METHOD FOR LOCATING MOBILE STATION AND A REPEATER OF THE MOBILE STATION

(54) 发明名称: 一种移动台定位方法及其直放站



(57) Abstract: The present invention relates to a method for locating a mobile station and a repeater equipment. When the mobile communication network receives a locating request from the mobile station, it commands the repeater to emit an assistant locating signal, then the mobile station estimates its location basing on its measuring result which is calculated by an assistant locating signal from the repeater and a downlink signal from the base station. An assistant locating unit is added to the downlink processing channel of said repeater, and said assistant locating unit comprises: Communication Module, Frame-timing Recovering Module, Time-sequence Controlling Module and Pilot Frequency Modulating Module. The present invention improves the locating precision of the mobile station when it is in the coverage of a repeater; and the present invention also offers an easily-achieved repeater which makes no affection on the existing mobile stations and signal flow.

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(57) 摘要

本发明涉及一种移动台定位方法及其直放站。所述的方法为：移动通信网络收到移动台定位请求时，令直放站发射辅助定位信号，移动台根据所接收的直放站发射的辅助定位信号和基站发射的下行信号进行测量，然后根据测量结果进行位置估计，实现移动台的定位。所述的直放站为：在现有的直放站下行处理通道中增加辅助定位单元，辅助定位单元包括：通信模块、帧定时恢复模块、控制时序模块和导频调制模块。本发明实现了提高处于直放站覆盖区域的移动台的定位精度的发明目的；而且本发明提供的具有辅助定位功能的直放站实现简单，且不影响现有移动台的结构和信令流程。

INTERNATIONAL SEARCH REPORT

International application No.

PCT/CN03/00630

A. CLASSIFICATION OF SUBJECT MATTER

IPC7 H04Q 7/32

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC7 H04Q

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

EPODOC,WPI,PAJ,CNPAT: MOBILE, LOCATING, BASE STATION, REPEATER

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	CN 1228908 A (NOKIA Telecommunications), 15. Sep.1999 (15.09.99), Desc, page 3 – page 4, page 8	1,13
Y		2
Y	CN 1290458 A(Samsong Electronics Co.,LTD), 04. Apr. 2001(04.04.01), Abstract	2
PY	CN 1413057 A(HUAWEI TECHNOLOGIES Co.,LTD), 23. Apr. 2003(23.04.03), Abstract	2
A	WO 0065731 A1 (NCT LTD) , 02. Nov. 2000(02.11.00), whole document	1-22

☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.

* Special categories of cited documents:	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A" document defining the general state of the art which is not considered to be of particular relevance	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E" earlier application or patent but published on or after the international filing date	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L" document which may throw doubts on priority claim (S) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&" document member of the same patent family
"O" document referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search 18. Sep 2003(18.09.03)	Date of mailing of the international search report 10 OCT 2003 (10.10.03)
Name and mailing address of the ISA/CN 6 Xitucheng Rd., Jimen Bridge, Haidian District, 100088 Beijing, China Facsimile No. 86-10-62019451	Authorized officer FAN Xiaohan Telephone No. 86-10-82755425



INTERNATIONAL SEARCH REPORT
Information on patent family members

International application No.
PCT/CN03/00630

Patent document Cited in search report	Publication Date	Patent family member(s)	Publication date
CN 1228908 A	15. Sep.1999	FI 962972 A	26..01.1998
		WO 9805172 A	05..02.1998
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		US 6373833 A	16. 04.2002
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WO 0065731 A1	02. Nov. 2000	AU 3343799 A	08.11.1999
		AU 3986600 A	10.11.2000
		EP 1074156 A	07. 02.2001

国际检索报告

国际申请号

PCT/CN03/00630

A. 主题的分类

IPC7 H04Q 7/32

按照国际专利分类表(IPC)或者同时按照国家分类和 IPC 两种分类

B. 检索领域

检索的最低限度文献(标明分类体系和分类号)

IPC7 H04Q

包含在检索领域中的除最低限度文献以外的检索文献

在国际检索时查阅的电子数据库(数据库的名称和, 如果实际可行的, 使用的检索词)

EPODOC, WPI, PAJ, CNPAT: 移动, 定位, 基站, 直放站, 中继站, TDOA

C. 相关文件

类 型*	引用文件, 必要时, 指明相关段落	相关的权利要求编号
X	CN 1228908 A (诺基亚电信公司), 15.9 月 1999 (15.09.99), 说明书第 3 页—第 4 页, 第 8 页	1, 13
Y		2
Y	CN 1290458 A (三星电子株式会社), 04.4 月 2001 (04.04.01), 摘要	2
PY	CN 1413057 A (华为技术有限公司), 23.4 月 2003 (23.04.03), 摘要	2
A	WO 0065731 A1 (NCT LTD), 02.11 月 2000 (02.11.00), 全文	1—22

☐ 其余文件在 C 栏的续页中列出。☒ 见同族专利附件。

* 引用文件的专用类型:

“A” 明确叙述了被认为不是特别相关的一般现有技术的文件

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“L” 可能引起对优先权要求的怀疑的文件, 为确定另一篇引用文件的公布日而引用的或者因其他特殊理由而引用的文件

“O” 涉及口头公开、使用、展览或其他方式公开的文件

“P” 公布日先于国际申请日但迟于所要求的优先权日的文件

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“Y” 特别相关的文件, 当该文件与另一篇或者多篇该类文件结合并且这种结合对于本领域技术人员为显而易见时, 权利要求记载的发明不具有创造性

“&” 同族专利成员的文件

国际检索实际完成的日期

18.9 月 2003 (18.09.03)

国际检索报告邮寄日期

10.10 月 2003 (10.10.03)

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中国北京市海淀区西土城路 6 号(100088)

传真号: 86-10-62019451

受权官员

范晓寒

电话号码: 86-10-82755425



国际检索报告
关于同族专利成员的情报

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检索报告中引用的 专利文件	公布日期	同族专利成员	公布日期
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		AU 738612 B	20. 09.2001
		JP 2002532979 T	02. 10.2002
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WO 0065731 A1	02. 11 月 2000	AU 3343799 A	08.11.1999
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